
UART Low Level Driver

Release Notes

Applies to Product Release: 01.00.00.16
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UART Low Level Driver version 01.00.00.16

Overview

This document provides the release information for the latest UART LLD which should be used by drivers and application that interface with UART.

UART LLD module includes:

- Compiled library (Big and Little) Endian of UART Low Level Driver.
- Sources, examples and unit test code.
- API reference guide

LLD Dependencies

LLD is dependent on following external components delivered in PDK package:

- CSL

New/Updated Features and Quality

Release 1.0.0.15

REQ #	Description
PRSDK-4453	Add SMP support

Release 1.0.0.14

REQ #	Description
PRSDK-4436	Increase number of UART ports via Soft UART with PRU

Release 1.0.0.12

REQ #	Description
PRSDK-2230	UART: support different stop bit
PRSDK-2231	UART: test different character length
PRSDK-2232	UART: test different parity types

Release 1.0.0.11

REQ #	Description
PRSDK-2194	RTOS Installer script to autosec SDK_INSTALL_PATH

Release 1.0.0.10

REQ #	Description

Release 1.0.0.9

REQ #	Description
PRSDK-3190	AM574x SoC integration
PRSDK-2664	Processor SDK upgrade for AM574x - New package and new features

Release 1.0.0.8

REQ #	Description
New feature	TDA2px support

Release 1.0.0.7

REQ #	Description
PRSDK-1266	UART LLD Rx trigger level user configurable
PRSDK-2119	Support for bypassing interrupt configuration in UART and OSAL module
PRSDK-2131	PDK support for DRA72x

Release 1.0.0.6

REQ #	Description
PRSDK-2063	Disabled profiling utils library references
PRSDK-1901	OSAL C66x lib in processor SDK to be enhanced to have Event Combiner APIs
PRSDK-1143	TI RTOS UART STUDIO APIs extension to support additional configuration
PRSDK-1018	TI RTOS UART: Timeout in polled mode
PRSDK-1446	Remove the board_cfg.h dependency
PRSDK-1460	UART support on DRA75x platform
PRSDK-1518	PDK: Control Driver Support for OMAPL137/OMAPL138 and C6748
PRSDK-1007	TI RTOS UART: Need to use RX FIFO

Release 1.0.0.5

REQ #	Description
PRSDK-44	Add iceK2G support
PRSDK-950	UART IP V1 trigger level support in DMA mode
PRSDK-996	TI RTOS: UART - Number of byte read incase of timeout
PRSDK-997	TI RTOS UART: Common library between DMA and non-DMA mode
PRSDK-1444	Add DRA75x support
PRSDK-1297	Add DRA78x support

Release 1.0.0.4

REQ #	Description
PRSDK-1083	UART LLD UART_readCancel() does not clear the previously received data (stale data).
PRSDK-1078	Remove unwanted waits in TI RTOS Drivers - I2C, UART
PRSDK-1015	Simultaneous read and write operation on same instance
PRSDK-1293	K2G UART LLD EDMA mode logical channel not freed
PRSDK-1448	K2G UART LLD EDMA mode stop responding
PRSDK-1549	Fix UART_printf issue in multi task calls
PRSDK-1552	Compilation failure while building UART_BasicExample_DMATestProject .
PRSDK-1638	UART_BasicExample tests failed due to DMA/non-DMA RX error on K2(ARM LE) platforms

Release 1.0.0.3

- DAL implementation corresponding to Keystone devices is relocated to CSL directory.
- DAL implementation corresponding to AM devices is reused from the CSL-FL.
- All the examples/test project bios config files are updated to include CSL library.

Release 1.0.0.2:

- Added the SoC driver and test/example support for K2G
- Added the SoC driver and test/example support for TDAxx
- Added ARM test/example for K2L/K2E
- Added benchmarking support
- Fixed Klocwork/Misra-C compilation warnings
- Added edma examples for AM335x and AM437x
- Cleaned up bios config file for AM572x/AM571x/AM437x/AM335x

Release 1.0.0.1:

- Added the lib and test/example support for Keystone II
- Added the lib and test/example support for Keystone I
- Added M4 support for AM571x and AM572x
- Fixed Klocwork/Misra-C compilation warnings
- Added benchmarking support

Release 1.0.0.0:

- Initial Release

Resolved Incident Reports (IR)

Release 1.0.0.16:

IR #	Description
PRSDK-6177	fix UART_Baremetal_TestApp failure for mpu1_0
PRSDK-6178	fix bug to run UART_DMA_TestApp on all the R5 cores
PRSDK-6233	Enabling all cores for j721e
PRSDK-6347	fix Misra-C issues
PRSDK-6476	fix UART non-DMA simultaneous read write test issue
PRSDK-6158	fix UART_BasicExample_TestProject task creation fail issue
PRSDK-2666	c++ build fix

Release 1.0.0.15:

IR #	Description
PRSDK-5678	fix Klocwork static analysis issues
PRSDK-4085	Add j721e_evm build support
PRSDK-2168	Updated while statement to a short and efficient code.
PRSDK-3291	Rename c7x to c7x_1
PRSDK-4967	one LLD library support for R5 on J7
PRSDK-5866	Fix for Simultaneous R/W test case (UT11) failure.
PRSDK-4453	Remove redundant config file and add generic config file
PRSDK-5991	UART LLD open fails for instances beyond UART2

Release 1.0.0.14:

IR #	Description
PRSDK-5273	RTSC dependencies added
PRSDK-5043	fix FIFO trigger level of 56 bytes test
PRSDK-5157	fix DMA FIFO trigger level test
PRSDK-4972	Add rxTCC variable for DMA RX complete
PRSDK-3586	J7 to J721E
PRSDK-5358	fix bios exception in UART_printf
PRSDK-5258	add test case to support multiple instances using DMA
PRSDK-3715	Migrate to new CSL SOC alias change
PRSDK-5449	Fix for UART_BasicExample_TestProject hang on iceAMIC110

Release 1.0.0.13:

IR #	Description
PRSDK-2230	add test case for stop bit
PRSDK-2231	add test case for char length
PRSDK-2232	add test case for parity type
PRSDK-4123	Align AM65xx unit tests name & directory for system test
PRSDK-4525	add unit test support on am65xx_idk
PRSDK-4529	fix issue of UART LLD can't read value 0xff byte
PRSDK-4704	Increaseing the MPU region size to 32K
PRSDK-4800	Updated all the UART examples to have a common string "press the esc"
PRSDK-4169	Adding sciclient as a dependency for board
PRSDK-4543	fix UART DMA TX/RX FIFO trigger level test on K1/K2
PRSDK-4169	Removed duplicate sciclient inclusion
PRSDK-297	Modify datat type int32 to int16
PRSDK-2892	Added Non-executable flag to device peripheral memory MMU config

Release 1.0.0.12:

IR #	Description
PRSDK-4049	RTOS: K3: UART teardown is not working
PRSDK-2866	CC-Link example prints the menu incorrectly
PRSDK-4197	UARTDivisorValCompute does not round up to nearest integer resulting in large baudrate errors
PRSDK-4105	UART open sets up incorrect baudrates for 921600 bps settings

Release 1.0.0.10:

IR #	Description
PRSDK-3272	UART DMA support library missing on AM437x
PRSDK-3382	UART: API UART_read() reads additional byte from what requested by application and drops in case FIFO has extra bytes
PRSDK-2819	Networking API header files are not compatible with C++
PRSDK-3471	PDK: unresolved symbols Compilation failure on AM5 platforms
PRSDK-3551	Incorrect interrupt definitions for UART1,2,4,5 in AM335x PDK driver
PRSDK-3023	LDRA code coverage support is needed in unit test projects to print statistics to UART
PRSDK-3394	Need unit test to test UART_Read: Possible loss of last byte when IP receives data before API is called and if returnMode is set to UART_RETURN_FULL
PRSDK-3040	OMAPL138 DSP example app execution fails when booting from SD card
PSDKRA-108	DRA78x build errors for all CCS examples
PSDKRA-54	Refactor pad configuration sequence

Release 1.0.0.9:

IR #	Description
PRSDK-3087	UART read misses input when returnMode is set to UART_RETURN_FULL
PRSDK-3037	UART_stdio: API files should include definition of return values expected from API functions
PRSDK-3038	uart example: has duplicate definition

Release 1.0.0.8:

IR #	Description
PRSDK-2786	fix UART even/odd parity setting bug

Release 1.0.0.7:

IR #	Description
PRSDK-2052	RTOS AMIC110: UART_BasicExample_TestProject fails
PRSDK-2067	RTOS AM570x-EVM: All DSP tests are failing because of no, or just one character, output to UART
PRSDK-2068	RTOS AM570x-EVM: All M4 tests are failing because of no, or just one character, output to UART
PRSDK-2069	RTOS AM570x-EVM: Many ARM tests are failing
PRSDK-2071	Fix Misra-C/KlocWork errors in i2c/gpio/uart/spi LLD
PRSDK-2256	Wrong documentation for UART function
PRSDK-2357	RTOS: UART: K2L SoC library build failure

Release 1.0.0.6:

IR #	Description
PRSDK-1984	UART-LLD: Tests fails with M4 in call back mode
PRSDK-1916	Renaming DRA7xx board names
PRSDK-1088	fixed wrong mmu configuration for DDR
PRSDK-1859	fix unit test compilation issue for keystone devices
PRSDK-2103	[UART LLD] Make with -j build fails intermittently for UART console lib

Release 1.0.0.5:

IR #	Description
PRSDK-1083	UART LLD UART_readCancel() does not clear the previously received data (stale data).
PRSDK-1078	Remove unwanted waits in TI RTOS Drivers - I2C, UART
PRSDK-1015	Simultaneous read and write operation on same instance
PRSDK-1293	K2G UART LLD EDMA mode logical channel not freed
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PRSDK-1549	Fix UART_printf issue in multi task calls
PRSDK-1552	Compilation failure while building UART_BasicExample_DMATestProject .
PRSDK-1638	UART_BasicExample tests failed due to DMA/non-DMA RX error on K2(ARM LE) platforms

Release 1.0.0.4:

IR #	Description
PRSDK-517	Add UART SoC Get/Set initial configuration API's in control LLDs for AM devices
PRSDK-839	klocwork bug introduced due to version update from 10.2.1 to 11.1.0
PRSDK-781	Klocwork report for TI RTOS drivers : UART, I2C, SPI, McASP and MMCSD
PRSDK-1084	K2G UART LLD Write callback is invoked before completion of UART Tx operation
PRSDK-1193	fix simultaneous read/write issue
PRSDK-1173	fix comilation issue for C6657 c66xDMATestProject
PRSDK-1192	fix UART_BasicExample_###_TestProject build error

Release 1.0.0.3:

IR #	Description
CATREQ-419	TI RTOS: UART driver to reuse CSL-FL

Known Issues/Limitations

Licensing

Please refer to the software Manifest document for the details.

Delivery Package

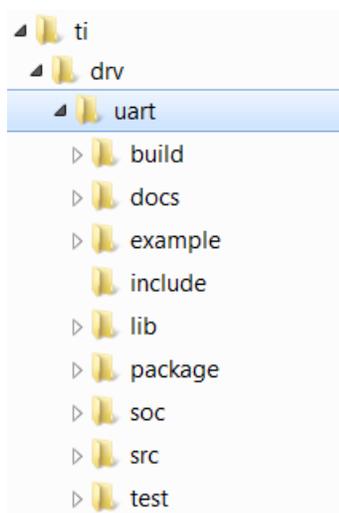
There is no separate delivery package. The UART LLD is being delivered as part of PDK.

Installation Instructions

The LLD is currently bundled as part of Platform Development Kit (PDK). Refer installation instruction to the release notes provided for PDK.

Directory structure

After installation, the UART LLD has the following directory structure:



The following table explains each individual directory:

Directory Name	Description
ti/drv/uart	The top level directory contains the following:-

	<ol style="list-style-type: none"> 1. <u>Environment configuration batch file</u> The file “setupenv.bat” is used to configure the build environment for the UART low level driver. 2. <u>XDC Build and Package files</u> These files (config.bld, package.xdc etc) are the XDC build files which are used to create the UART package. 3. <u>Exported Driver header file</u> Header files which are provided by the UART low level driver and should be used by the application developers for driver customization and usage.
ti/drv/uart/build	The directory contains internal XDC build related files which are used to create the UART low level driver package.
ti/drv/uart/docs	The directory contains the UART low level driver documentation.
ti/drv/uart/example	The “example” directory in the UART low level driver contains a simple example.
ti/drv/uart/lib	The “lib” folder has pre-built Big and Little Endian libraries for the UART low level driver along with their <u>code/data size information</u> .
ti/drv/uart/package	Internal UART low level driver package files.
ti/drv/uart/soc	Source code for the UART SoC specific low level driver.
ti/drv/uart/src	Source code for the UART IP specific low level driver.
ti/drv/uart/test	The “test” directory in the UART low level driver contains unit test examples.

Customer Documentation List

Table 1 lists the documents that are accessible through the /docs folder on the product installation CD or in the delivery package.

Table 1 Product Documentation included with this Release

Document #	Document Title	File Name
1	API documentation (generated by Doxygen)	docs/uartDocs.c htm
2	Release Notes	docs/ReleaseNot es_UART_LLD. pdf
2	Software Manifest	docs/ UART_LLD_So ftwareManifest. html